

REMARKS

After entry of this Communication, claims 1-20 are pending in this application. Claims 3, 6-8, 10, 13 and 17 have been amended to more particularly point out and distinctly claim the subject matter that the Applicant regards as the invention. Reconsideration of the application as amended is requested.

In the Office Action dated May 14, 2002, the Declaration is objected to for failing to comply with 37 C.F.R. § 1.67(a). The Examiner states that the Oath, or Declaration, does not identify the city, state or foreign country of residence of the Applicant. A new Declaration is submitted herewith listing the city and region of France in which the Applicant resides. It is submitted that this submission traverses the objection to the Declaration.

Claim 17 stands objected to because the term "the sensed conditions" lacks proper antecedent basis. Claim 17 has been amended to overcome the objection. It is submitted that the amendment to claim 17 places the claim in suitable condition for allowance.

Claims 1-20 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter that the Applicant regards as the invention. The Examiner states that in claims 1, 11 and 17, it is unclear how sensing the presence of moisture is functionally related to the signal corresponding to the sensed conditions and ambient light conditions. It is submitted that the presence of moisture on the moisture collecting surface is a condition to be sensed by the optical moisture sensor 12. After the condition of the moisture collecting surface 16 has been sensed, a signal corresponding to the sensed condition is emitted by the optical moisture sensor 12. The Examiner specifically asks how the sensor detects ambient light conditions. The sensor can be a CMOS imaging array or a CCD imaging array sensor which is well-known in the art.

The Examiner also states that it is unclear what "sensed conditions" refers to. The "sensed conditions" refers to the state or condition of the moisture collecting surface as perceived or detected or sensed by the optical sensor 12. For

example, a sensed condition may be a moisture collecting surface having moisture disposed thereon. Alternatively, a sensed condition may be a moisture collecting surface that is dry.

The Examiner also states that it is unclear how the signal is functionally related to the ambient light conditions. As stated above, the optical sensor 16 for detecting moisture senses the relative level of ambient light and emits a signal that corresponds to the sensed level of ambient light. The Examiner specifically asks if processor means determines an ambient light value from the signal. The claims define that processor means determines an absolute ambient light value corresponding to existing ambient light conditions.

With respect to claim 6-8, the Examiner states that it is unclear how the signals sent to the processor means are functionally related to the signal as claimed in claim 1. The Examiner also states that it is unclear if the signals of claims 6-8 are compared or not. The Examiner also states that it is unclear how the data that is collected is functionally related to a moisture or an ambient light condition. Claims 6-8 have been amended to eliminate the language cited by the Examiner as being unclear.

With respect to claim 8, the Examiner states that it is unclear how dark pixels functionally differ from normal pixels. On page 5, lines 5-8 of the specification, it is disclosed that the dark pixels can be used to determine an absolute value of ambient light by comparing a signal from a dark pixel 26 to a signal from a pixel 22a. From this description, one of ordinary skill would recognize that the dark pixels 26 are not operable to receive ambient light and, therefore, provide a reference with respect to the pixels 22a that are operable to receive ambient light.

With respect to claim 10, the Examiner states that it is unclear how a predetermined value, a first predetermined value, and a second predetermined value are related. The Examiner specifically asks how many predetermined values are there. Claim 10 has been amended to recite that the processor means compares the absolute ambient light value to a plurality of predetermined values, including first and second predetermined values, to clarify how the predetermined value, the first

predetermined value, and the second predetermined value are related. It is submitted that the amendments to the claims overcome the Examiner's rejections made pursuant to 35 U.S.C. § 112, second paragraph.

Claims 1-13 and 15-20 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Bos, et al., U.S. Patent No. 6,313,454. It is submitted that Bos, et al., does not teach or suggest the invention as recited in claim 1. Specifically, Bos, et al., does not teach or suggest determining an absolute ambient light level. The rain sensor system 16 of Bos, et al., determines a "DN" value of light which is the sum of light values sensed by each pixel in the imaging array sensor, '454 patent, column 10, lines 28-30. An "absolute" value is unconditional and does not require reference to another value for its exact nature or size. Random House Webster's Unabridged Dictionary 7 (2d ed. 1997). Each light value individually sensed by each pixel of the imaging array sensor of Bos, et al., is a relative value corresponding to light, but not an absolute or unconditional light value. Bos, et al., does not teach or suggest comparing the DN value to a reference value to determine the exact nature or degree of ambient light.

The present invention, on the other hand, determines an absolute ambient light value by which the signal from a dark pixel 26 is compared to a signal from a pixel 22a. Specification page 5, lines 4-8. The signal from the dark pixel 26 provides a reference value to compare to the signal from the pixel 22a and the absolute ambient light value thus determined is not relative. Since Bos, et al., is devoid of any teaching or suggestion of this feature, it is submitted that claim 1 patentably defines over Bos, et al., and is in suitable condition for allowance.

Claims 2-10 depend from claim 1 and are therefore also in suitable condition for allowance by reasons of dependency. Claims 11 and 17 also recite determining an absolute ambient light value corresponding to existing ambient light conditions and are therefore also in suitable condition for allowance for the same reasons. Claims 12-13 and 15-16 depend from claim 11 and claims 18-20 depend from claim 17 so as to be in suitable condition for allowance.

With respect to claim 3, it is submitted that Bos, et al., does not teach or suggest timer means for selectively disabling the processor means from comparing the value to the predetermined value for a predetermined period of time. The Examiner states that the A/D converter 37 of Bos, et al., inherently acts as a timer means for disabling the processor from comparing for a predetermined period of time. The A/D converter 37 converts analog information captured by the imaging array 36 into digital format for use in processing by filtering process 35 and an edge detection function 44. '454 patent, column 5, lines 52-56. Analog-to-digital converters, such as A/D converter 37, emit a digital signal in predetermined time increments. However, these time increments are constant and therefore, under the Examiner's interpretation, the A/D converter 37 continuously "disables" electronic control 40 whenever a digital signal is not being emitted.

In the present invention, on the other hand, processor means can be selectively disabled with timer means. Specifically, signals can be received by processor means without performing a comparison of the ambient light value with a predetermined value. Bos, et al. does not teach or suggest that the A/D controller 37 can selectively disable to the electric control 40 after the digital signal has been emitted by the A/D controller 37. It is therefore submitted that claim 3 patentably defines over Bos et al. and is in suitable condition for allowance in addition to being allowable by dependency from claim 1.

Claim 13 also recites timer means for selectively disabling the processor means from comparing the value to the predetermined value for a predetermined period of time and is therefore also in suitable condition for allowance in addition to being allowable by dependency from claim 11.

With respect to claim 8, it is submitted that Bos, et al., does not teach or suggest a photo array having a plurality of dark pixels and a plurality of standard pixels. The Examiner has stated that Bos, et al., discloses collecting data from dark pixels and from normal pixels in Figure 7. Applicant's attorney has carefully reviewed Bos, et al., and submits that Figure 7 does not disclose collecting data from dark pixels when the light is off and normal pixels when the light is on. The dark

pixels recited in claim 8 are described on page 5, lines 4-8, of the specification as being functionally different from pixels 22a and are shown as being structurally different than pixels 22a in Figure 6 of the application. Bos, et al. does not teach or suggest that the illumination detector 36 includes more than one configuration of pixels. It is therefore submitted that claim 8 patentably defines over the reference and is in suitable condition for allowance in addition to being allowable by dependency from claim 1.

With respect to claim 10, it is submitted that Bos, et al., does not teach or suggest comparing the absolute ambient light value to a first predetermined value and to a second predetermined value. The Examiner states that the ambient light value is compared to first and second predetermined values in steps 230 and 330 of the process illustrated in Figure 7. Step 230 of the process illustrated in Figure 7 is to determine whether the sum of the "DN" is greater than a threshold value, '454 patent, column 12, lines 19-25. The "DN" value is the sum of light values sensed by each pixel in the imaging array sensor. '454 patent, column 10, lines 28-30. The ambient light value is determined by the ambient light logic function 54. '454 patent, column 9, line 66 through column 10, line 1. On the other hand, the comparison in step 330 of the process illustrated in Figure 7 compares the sum of the edges with a threshold value. '454 patent, column 12, lines 44-58. The sum of the edge's value is not the ambient light value "DN." Furthermore, the threshold values recited in steps 230 and 330 are different. Compare '454 patent, column 12, lines 24-25 with lines 57-58. It is therefore submitted that claim 10 patentably defines over Bos et al. and is in suitable condition for allowance in addition to being allowable by dependency from claim 1.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bos, et al. The Examiner states that the number of times that the comparison is carried out is a matter of design choice and it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide two successive comparisons in the device of Bos, et al., to improve the accuracy and precision of the detection.

However, it is submitted that Bos, et al., does not teach or suggest the invention as recited in claim 14. To establish a prima facie obviousness of claimed invention, all of the claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03. As acknowledged by the Examiner, Bos, et al., does not teach or suggest a processor emitting a control signal only if at least two successive comparisons indicate the value is less than the predetermined value. Therefore, it is submitted that the rejection of claim 14 is unsupportable.

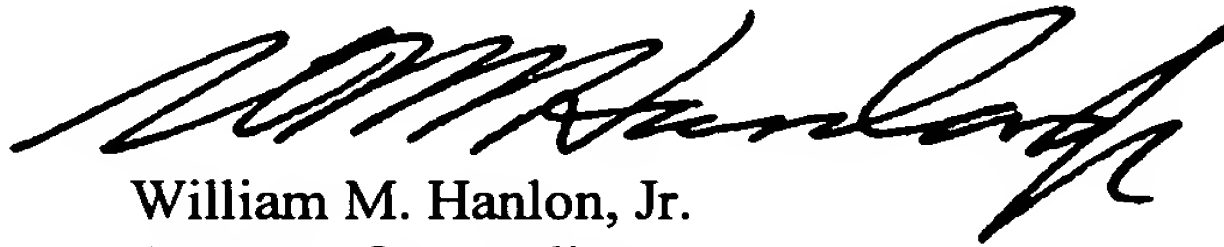
If the Examiner is relying on common knowledge or "well-known" prior art, the Applicant traverses such an assertion and requests that the Examiner cite a reference in support of his position pursuant to M.P.E.P. § 2144.03. Bos, et al. provides a smoothing algorithm 35 to minimize the likelihood of erroneously detecting rain droplets. '454 patent, Abstract. Bos, et al. does teach or suggest a method for, or the desirability of, reducing errors associated with ambient light detection. It is therefore submitted that claim 14 patentably defines over Bos, et al. and is suitable condition for allowance. Claim 16 depends from claim 14 and is therefore also in suitable condition for allowance in addition to being allowable by dependency from claim 11.

It is respectfully submitted that this Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. It is further submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Reconsideration of the application as amended is requested. It is respectfully submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

YOUNG, BASILE, HANLON, MacFARLANE,
WOOD & HELMHOLDT, P.C.

A handwritten signature in black ink, appearing to read 'W. M. Hanlon, Jr.', is positioned above the typed name.

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Date: August 14, 2002
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Replace the paragraph starting on page 6, line 29 of the specification and ending on page 7, line 16 with:

The processor 14 can also include a timer for selectively disabling the comparison of the value to the predetermined value for a predetermined period of time. The process steps of the timer are shown in the simplified flow diagram of Fig. 5. The process starts at step 54. Step 56 monitors the status of the timer. If the timer is engaged or running, the process continues to step 58 and returns to the step 40 in Fig. 3. Obviously, during a first iteration of the timer process, the timer will not be running. If the timer is not running, steps 46a and 50a are completed. Step 60 engages the timer. The timer process can be desirable to prevent the processor 14 from completing unnecessary comparisons. For example, if the processor 14 determines that the value is less than the predetermined value, corresponding to a relatively lower level of ambient light, the subsequent comparison should also indicate a relatively lower level of ambient light. Completing another comparison to confirm this assumption can be an undesirable use of the processor 14. The amount of time set by step 60 can be from one second to one minute, one minute to five minutes, or five minutes to one hour. Step 58 returns the processor 14 to step 40 of Fig. 3.

In the claims:

3. (Amended) The optical moisture detector of claim 1 further comprising:

timer means for selectively disabling the processor means from comparing the value to the predetermined value for a predetermined period of time.

6. (Amended) The optical moisture detector of claim 1 wherein the optical moisture sensor further comprises:

a CCD camera [for collecting data to be sent as signals to the processor means].

7. (Amended) The optical moisture detector of claim 1 wherein the optical moisture sensor further comprises:

a CMOS camera [for collecting data to be sent as signals to the processor means].

8. (Amended) The optical moisture detector of claim 1 wherein the optical moisture sensor further comprises:

a photo array having a plurality of dark pixels and a plurality of standard pixels [for collecting data to be sent as signals to the processor means].

10. The optical moisture detector of claim 1 wherein the processing means compares the absolute ambient light value to a plurality of predetermined values such that the processing means compares the absolute ambient light value to a first predetermined value to determine if a signal to turn on a light generating device is to be sent, and compares the absolute ambient light value to a second predetermined value to determine if a signal to turn off the light generating device is to be sent.

13. (Amended) The optical moisture detector of claim 11 further comprising:

timer means for selectively disabling the processor means from comparing the value to the predetermined value for a predetermined period of time.

17. (Amended) A method of measuring ambient light conditions comprising:

sensing the presence of moisture on a moisture collecting surface with an optical moisture sensor, the sensor operable to emit a signal corresponding to [the] sensed conditions;

receiving the signal and determining an absolute ambient light value corresponding to the existing ambient light conditions with processor means;

comparing the value to a predetermined value with the processor means; and

emitting a control signal with the processor means if the value is less than the predetermined value as a result of the comparing step.